

Abstract Submitted
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Drift Wave Turbulence in Helicon High-Density Linear Plasma I: Experimental Device and Plasma Performance¹ S. SHINOHARA, T. NISHIJIMA, M. KAWAGUCHI, K. TERASAKA, Y. NAGASHIMA, T. YAMADA, T. MARUTA, Y. KAWAI, M. YAGI, S.-I. ITOH, Kyushu Univ., Japan, A. FUJISAWA, K. ITOH, NIFS, Japan — We have been investigating the drift wave turbulence in the helicon high-density (up to 10^{19}cm^{-3}) linear plasma [1]. Upgrading this machine has been carried out recently to increase the axial size from 170 to 370 cm and the magnetic field from 1.2 to 1.5 kG with the vacuum vessel diameter of 45 cm in order to excite drift waves more easily in a wide range of operation parameters. New device can accept flexible access of various diagnostic ports, and developing electrostatic probe systems was also conducted such as 48 and 64 probe tips in the azimuthal direction and the two-dimensional moving probe. Changing the magnetic field and field configurations, argon gas pressure and the magnetic field, we could obtain the relative density fluctuation level up to 20 %, which is comparable to our previous experiment in the old short device. [1] S. Shinohara, Y. Miyauchi and Y. Kawai, Plasma Phys. Control. Fusion **37**, 1015 (1995).

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Shunjiro Shinohara
Kyushu University, Japan

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